Advance Information

SWITCHMODE™ Power Rectifier

MBR4045WT

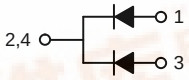
SCHOTTKY BARRIER RECTIFIER 40 AMPERES 45 VOLTS

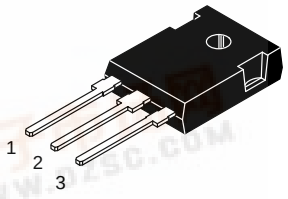
The SWITCHMODE power rectifier employs the use of the Schottky Barrier principle with a Platinum barrier metal. This state-of-the-art device has the following features:

- Dual Diode Construction — Terminals 1 and 3 May Be Connected for Parallel Operation at Full Rating
- 45 Volt Blocking Voltage
- Low Forward Voltage Drop
- Guardring for Stress Protection and High dv/dt Capability (> 10 V/ns)
- Guaranteed Reverse Avalanche
- 150°C Operating Junction Temperature

Mechanical Characteristics

- Case: Epoxy, Molded
- Weight: 4.3 grams (approximately)
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- Lead Temperature for Soldering Purposes: 260°C Max. for 10 Seconds
- Shipped 30 Units Per Plastic Tube
- Marking: B4045





CASE 340K–01
TO–247AC

MAXIMUM RATINGS

Rating	Symbol	Max	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	45	Volt
Average Rectified Forward Current — Per Diode (Rated V_R) @ T_C = 125°C — Per Device	$I_{F(AV)}$	20 40	Amp
Peak Repetitive Forward Current, Per Diode (Rated V_R, Square Wave, 20 kHz) @ T_C = 90°C	I_{FRM}	40	Amp
Non Repetitive Peak Surge Current (Surge applied at rated load conditions halfwave, single phase, 60 Hz)	I_{FSM}	400	Amp
Peak Repetitive Reverse Current (2.0 µs, 1.0 kHz)	I_{RRM}	2.0	Amp
Operating Junction Temperature	T_J	–65 to +150	°C
Storage Temperature	T_{stg}	–65 to +175	°C
Peak Surge Junction Temperature (Forward Current Applied)	$T_{J(pk)}$	175	°C
Voltage Rate of Change	dv/dt	10,000	V/µs

THERMAL CHARACTERISTICS

Thermal Resistance — Junction to Case	$R_{\theta JC}$	1.4	°C/W

SWITCHMODE is a trademark of Motorola, Inc.

This document contains information on a new product. Specifications and information herein are subject to change without notice.

ELECTRICAL CHARACTERISTICS

Rating	Symbol	Max	Unit
Instantaneous Forward Voltage (1)	V_F		Volts
@ I_F = 20 Amps, T_C = 25°C		0.70	
@ I_F = 20 Amps, T_C = 125°C		0.60	
@ I_F = 40 Amps, T_C = 25°C		0.80	
@ I_F = 40 Amps, T_C = 125°C		0.75	
Instantaneous Reverse Current (1)	I_R		mA
@ Rated DC Voltage, T_C = 25°C		1.0	
@ Rated DC Voltage, T_C = 100°C		50	

(1) Pulse Test: Pulse Width = 300 μs, Duty Cycle < 2.0%

TYPICAL ELECTRICAL CHARACTERISTICS

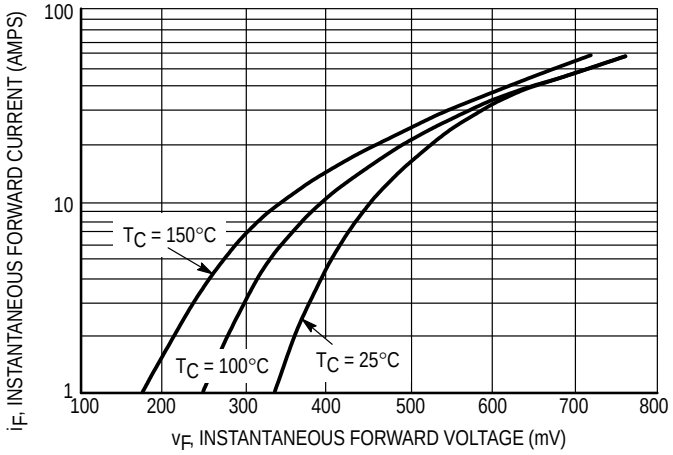


Figure 1. Typical Forward Voltage

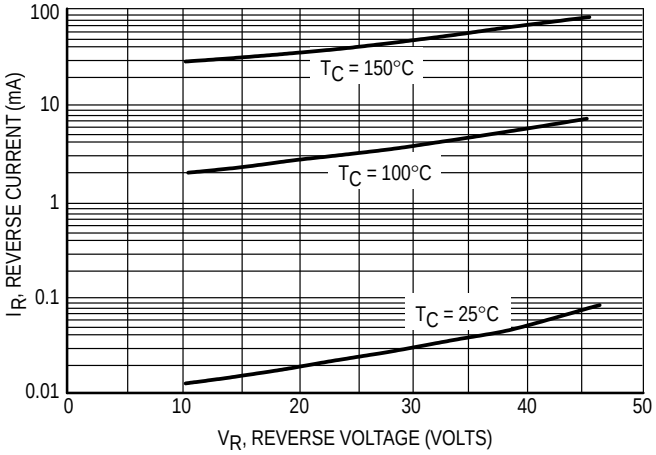


Figure 2. Typical Reverse Current

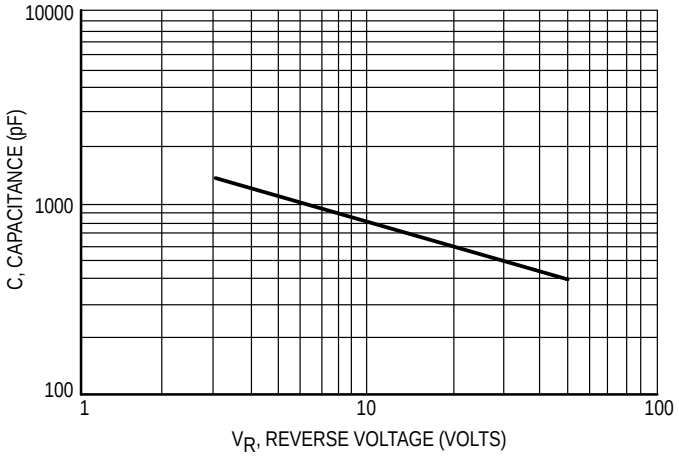


Figure 3. Typical Capacitance Per Leg

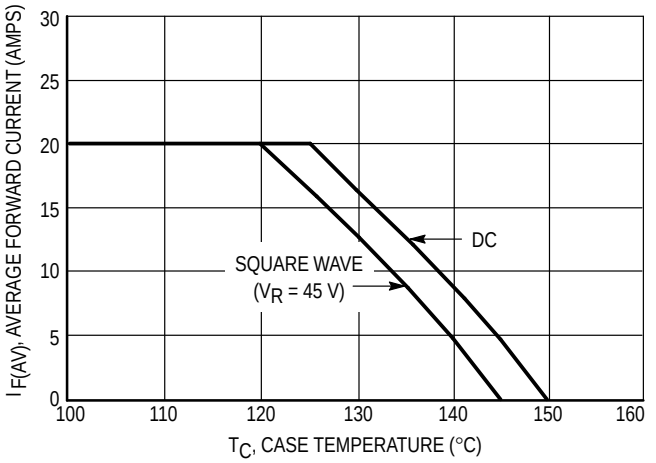
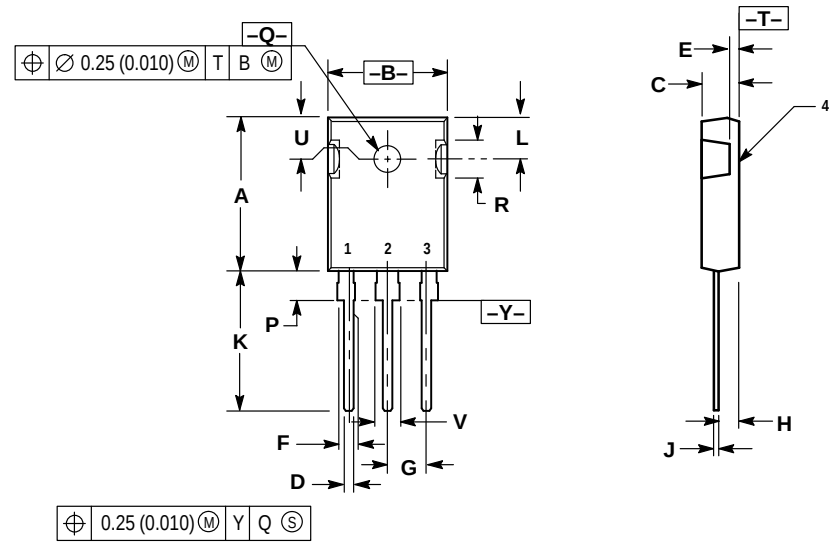


Figure 4. Current Derating Per Leg

PACKAGE DIMENSIONS



NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETER.

	MILLIMETERS		INCHES	
DIM	MIN	MAX	MIN	MAX
A	19.7	20.3	0.776	0.799
B	15.3	15.9	0.602	0.626
C	4.7	5.3	0.185	0.209
D	1.0	1.4	0.039	0.055
E	1.27 REF		0.050 REF	
F	2.0	2.4	0.079	0.094
G	5.5 BSC		0.216 BSC	
H	2.2	2.6	0.087	0.102
J	0.4	0.8	0.016	0.031
K	14.2	14.8	0.559	0.583
L	5.5 NOM		0.217 NOM	
P	3.7	4.3	0.146	0.169
Q	3.55	3.65	0.140	0.144
R	5.0 NOM		0.197 NOM	
U	5.5 BSC		0.217 BSC	
V	3.0	3.4	0.118	0.134

STYLE 2:
PIN 1. ANODE 1
2. CATHODE(S)
3. ANODE 2
4. CATHODE(S)

CASE 340K–01
ISSUE O

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